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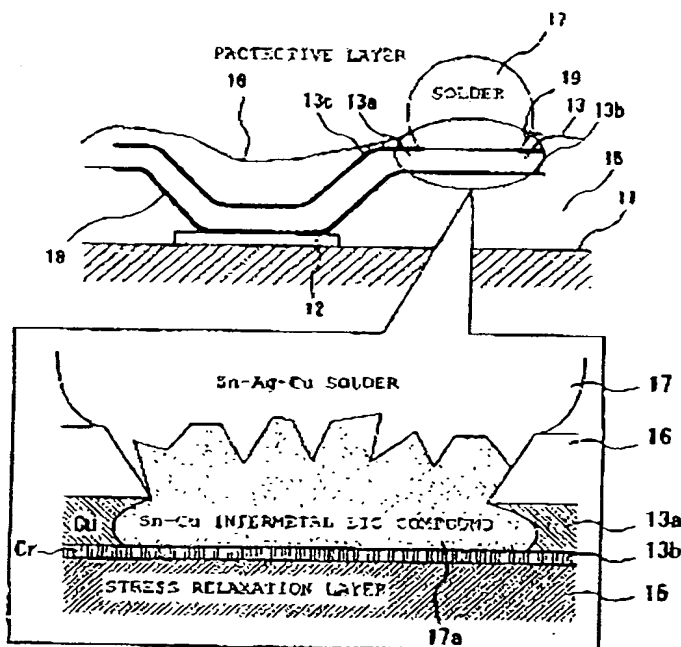
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W00052755

### WIRING BOARD AND ITS PRODUCTION METHOD, SEMICONDUCTOR DEVICE AND ITS PRODUCTION METHOD, AND ELECTRONIC APPARATUS HITACHI, LTD.

Inventor(s): NARIZUKA, Yasumori ; ITOU, Mitsuko ; YAMAGUCHI, Yoshihide ; TENMEI, Hiroyuki  
Application No. JP0000695 JP, Filed 20000209, A1 Published 20000908

**Abstract:** A high-density wiring board having a high connection reliability and produced at low cost. The wiring board is characterized by comprising a board having an electrode and covered with an insulating layer in which a hole is made so as to expose the electrode, a wiring connected to the electrode and formed of a layer adhering to the insulating layer and made of Cr or Ti and a layer adhering to the Cr or Ti layer and made of Cu, a protective film covering the wiring and having therein a hole for soldering, and solder for external connection formed in the hole by diffusion-alloying the Cu layer and reaching the Cr or Ti layer for establishing

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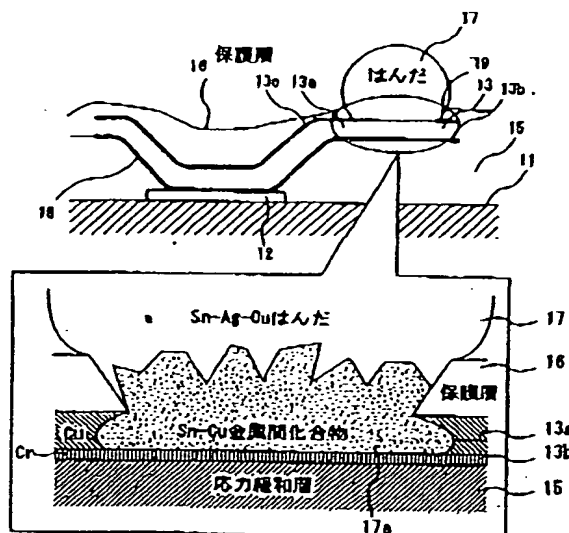
(51) 国際特許分類7 H01L 23/12, 23/15, H05K 3/34	A1	(11) 国際公開番号 WO00/52755  (43) 国際公開日 2000年9月8日(08.09.00)
(21) 国際出願番号 PCT/JP00/00695  (22) 国際出願日 2000年2月9日(09.02.00)  (30) 優先権データ 特願平11/49450 1999年2月26日(26.02.99) JP  (71) 出願人 (米国を除くすべての指定国について) 株式会社 日立製作所(HITACHI, LTD.)(JP/JP) 〒101-8010 東京都千代田区神田駿河台四丁目6番地 Tokyo, (JP) (72) 発明者 ; および (75) 発明者 / 出願人 . (米国についてのみ) 成塚康則(NARIZUKA, Yasumori)(JP/JP) 伊藤光子(ITOU, Mitsuko)(JP/JP) 山口欣秀(YAMAGUCHI, Yoshihide)(JP/JP) 天明潜之(TENMEI, Hiroyuki)(JP/JP) 〒244-0817 神奈川県横浜市戸塚区吉田町292番地 株式会社 日立製作所 生産技術研究所内 Kanagawa, (JP) (74) 代理人 弁理士 作田康夫(SAKUTA, Yasuo) 〒100-8220 東京都千代田区丸の内一丁目5番1号 株式会社 日立製作所内 Tokyo, (JP)		(81) 指定国 CA, CN, KR, SG, US, 欧州特許 (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE)  添付公開書類 国際調査報告書

(54) Title: WIRING BOARD AND ITS PRODUCTION METHOD, SEMICONDUCTOR DEVICE AND ITS PRODUCTION METHOD, AND ELECTRONIC APPARATUS

(54) 発明の名称 配線基板およびその製造方法、半導体装置およびその製造方法並びに電子機器

(57) Abstract

A high-density wiring board having a high connection reliability and produced at low cost. The wiring board is characterized by comprising a board having an electrode and covered with an insulating layer in which a hole is made so as to expose the electrode, a wiring connected to the electrode and formed of a layer adhering to the insulating layer and made of Cr or Ti and a layer adhering to the Cr or Ti layer and made of Cu, a protective film covering the wiring and having therein a hole for soldering, and solder for external connection formed in the hole by diffusion-alloying the Cu layer and reaching the Cr or Ti layer for establishing connection.



- 16...PROTECTIVE LAYER  
17...SOLDER  
a...Sn-Ag-Cu SOLDER  
17a...Sn-Cu INTERMETALLIC COMPOUND  
15...STRESS RELAXATION LAYER